Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-20 (Canceled)

21. (New) A rate matching method for uplink of a mobile telecommunication system, comprising:

interleaving a plurality of turbo coded bits including a first bit sequence, a second bit sequence, and a third bit sequence at an interleaver;

calculating a first shifting parameter value to the second bit sequence for each column of the interleaver carrying out the interleaving step;

calculating a second shifting parameter value to the third bit sequence for each column of the interleaver carrying out the interleaving step; and

deciding a rate matching pattern for each of the second parity bit sequence and the third parity bit sequence by using the shifting parameter values.

22. (New) The method according to claim 21, wherein the first bit sequence is a systematic bit sequence, and the second and third bit sequences are parity bit sequences.

23. (New) The method according to claim 21, wherein when carrying out a puncturing process, the step of calculating the shifting parameter values comprises,

deciding a number of bits to be punctured, and

deciding a puncturing distance.

24. (New) The method according to claim 23, wherein if the puncturing distance is equal to or below 2, the puncturing distance is calculated by using $S[(3k+b - 1) \bmod K] = k \bmod 2$,

wherein k is an integer in a range of $0 \leq k < K$, K represents a number of columns of interleaver sequences, $S[n]$ is the shifting parameter corresponding to a sequence number n, and b is equal to 2 and 3, corresponding to the second bit sequence and the third bit sequence, respectively.

25. (New) The method according to claim 23, wherein if the puncturing distance is greater than 2, the step of calculating the shifting parameter values comprises,

deciding a temporary variable depending upon the puncturing distance,

deciding a k value by using $k = [i^* q']\bmod K$, and

calculating a $S[(3k + b - 1)\bmod K] = [i^* q']divK$ value,

wherein i is an integer in a range of $0 \leq i < K$, K represents a number of columns of interleaver sequences, q' is the temporary variable, $S[n]$ is the shifting parameter corresponding to a sequence number n, and b is equal to 2 and 3, corresponding to the second bit sequence and

the third bit sequence, respectively.

26. (New) The method according to claim 23, wherein the step of deciding the number of bits to be punctured comprises,

deciding the number of bits to the second bit sequence as $\lfloor P \rfloor$, and

deciding the number of bits to the third bit sequence as $\lceil P \rceil$,

wherein P represents the number of bits to be punctured per each column of the interlever.

27. (New) The method according to claim 23, wherein the step of deciding the number of bits to be punctured comprises,

deciding the number of bits to the second bit sequence as $\lceil P \rceil$, and

deciding the number of bits to the third bit sequence as $\lfloor P \rfloor$,

wherein P represents the number of bits to be punctured per each column of the interleaver.

28. (New) The method according to claim 23, wherein depending upon whether the column number of the interleaver is an odd number or not, the step of deciding the number of bits to be punctured comprises,

deciding the number of bits to the second bit sequence as $\lceil P \rceil$, and the number of bits

to the third bit sequence as $\lfloor P \rfloor$, or

deciding the number of bits to the second bit sequence as $\lfloor P \rfloor$, and the number of bits to the third bit sequence as $\lceil P \rceil$,

wherein P represents the number of bits to he punctured per each column of the interleaver.

29. (New) The method according to claim 23, wherein depending upon whether the column number of the interleaver is less than $K/2$, the step of deciding the number of bits to be punctured comprises,

deciding the number of bits to the second bit sequence as $\lceil P \rceil$, and the number of bits to the third bit sequence as $\lfloor P \rfloor$, or

deciding the number of bits to the second bit sequence as $\lfloor P \rfloor$, and the number of bits to the third bit sequence as $\lceil P \rceil$,

wherein P represents the number of bits to be punctured per each column of the interleaver, and K represents a number of columns of the interleaver.

30. (New) The method according to claim 21, wherein the step of deciding the rate matching pattern comprises calculating an initial error value by using the shifting parameter value.

31. (New) The method according to claim 21, wherein the column of the interleaver is wireless frame.

32. (New) The method according to claim 21, wherein the turbo coding is a channel coding to a transport channel.

33. (New) A rate matching method for uplink of a mobile telecommunication system, comprising:

interleaving a plurality of turbo coded bits including a plurality of systematic bits, a plurality of first parity bits, and a plurality of second parity bits at an interleaver;

providing a first shifting parameter corresponding to a wireless frame having an index for the first parity bits of $(3k + 1)\mathrm{mod}\ K$;

providing a second shifting parameter corresponding to a wireless frame having an index for the second parity bits of $(3k + 2)\mathrm{mod}\ K$; and

deciding a match rating pattern for each of the first parity bits and the second parity bits of the output of the interleaving output by using the shifting parameters,

wherein k is an integer in a range of $0 \leq k < K$, and K represents a number of columns of the interleaver.

34. (New) The method according to claim 33, wherein when carrying out a puncturing step, the step of providing the shifting parameter comprises,

deciding a number of bits to be punctured to the first parity bits as $\lceil P \rceil$, and

deciding a number of bits to be punctured to the second parity bits as $\lfloor P \rfloor$,

wherein P represents the number of bits to be punctured per each column of the interleaver.

35. (New) The method according to claim 33, wherein when carrying out the puncturing step and if the puncturing distance is less than or equal to 2, the shifting parameter value corresponding to the wireless frame being designated as the index is k mod 2, wherein k is an integer in a range of $0 \leq k < K$, and K represents a number of columns of the interleaver.

36. (New) The method according to claim 33, wherein when carrying out a puncturing step and if the puncturing distance is greater than 2, the step of providing the shifting parameter comprises,

deciding a temporary variable depending upon the puncturing distance,

deciding a k value by using $k = [i' * q']$ mod K, and

calculating the shifting parameter value corresponding to the wireless frame being designated as the index by using $[i' * q'] div K$,

wherein i is an integer in a range of $0 \leq i < K$, K represents a number of columns of the interleaver, and q' is the temporary variable.

37. (New) The method according to claim 33, wherein the step of deciding the rate matching pattern comprises calculating an initial error value by using the shifting parameter value.

38. (New) The method according to claim is 33, wherein the wireless frame is the columns of the interleaver carrying out the interleaving step.

39. (New) The method according to claim 33, wherein the turbo coding is a channel coding to a transport channel.

40. (New) A rate matching method for uplink of a mobile telecommunication system, comprising:

interleaving a plurality of turbo coded bits including a plurality of systematic bits, a plurality of first parity bits, and a plurality of second parity bits at an interleaver;

constructing a first virtual interleaving pattern with the first parity bits;

constructing a second virtual interleaving pattern with the second parity bits;

calculating at least one first shifting parameter value to the first virtual interleaving pattern and at least one second shifting parameter value to the second virtual interleaving pattern; and

carrying out a rate matching algorithm to the output bits of the interleaver by using the shifting parameter values.

41. (New) The method according to claim 40, wherein $n = (3k + 1)\mathrm{mod}K$ for the first interleaving pattern, and $n = (3k + 2)\mathrm{mod}\ K$ for the second virtual interleaving pattern, wherein n represents a column index of the virtual interleaving pattern, k is a column index of the interleaving pattern, and K is a number of columns of the interleaver.

42. (New) The method according to claim 40, wherein the step of calculating the shifting parameter values comprises,

deciding a number of bits to be punctured,

deciding a puncturing distance, and

calculating the shifting parameters.

43. (New) The method according to claim 42, wherein the shifting parameter is calculated depending upon the puncturing distance.

44. (New) The method according to claim 42, wherein the step of deciding the number of bits to be punctured comprises,

deciding the number to the second bit sequence as $\lfloor P \rfloor$, and deciding the number to the

third bit sequence as $\lceil P \rceil$,

wherein P represents the number of bits to be punctured per each column of the interleaver.

45. (New) The method according to claim 40, wherein the step of deciding the rate matching pattern comprises calculating an initial error value by using the shifting parameter value.

46. (New) The method according to claim 40, wherein the columns of the interleaver carrying out the interleaving step is a wireless frame.

47. (New) The method according to claim 40, wherein the turbo coding is a channel coding to a transport channel.

48. (New) A rate matching device for uplink of a mobile telecommunication system, comprising:

means interleaving a plurality of turbo coded bits including a first bit sequence, a second bit sequence, and a third bit sequence; and

means calculating at least one shifting parameter for each of the interleaved second and third bit sequences, and deciding a rate matching pattern to each bit sequence by using the shifting parameters.

49. (New) A rate matching device for uplink of a mobile telecommunication system, comprising:

means interleaving a plurality of turbo coded bits including a systematic bit sequence, a first parity bit sequence, and a second parity bit sequence; and

means providing a first shifting parameter corresponding to a column having a wireless frame number of $(3k + 1)\bmod K$ of the interleaver for the first parity bit sequence, and providing a second shifting parameter corresponding to a column having a wireless frame number of $(3k+1)\bmod K$ of the interleaver for the second parity bit sequence, and means deciding a rate matching pattern of the interleaved output by using the provided shifting parameters,

wherein k is an integer in a range of $0 \leq k < K$, and K is a number of columns of the interleaving means.

50. (New) The device according to claim 48 or claim 49, wherein the number of columns of the interleaving means is any one of 1, 2, 4, and 8.

51. (New) A method for deciding a parameter for an uplink rate matching, comprising:

calculating a rate between an input bit sequence and a number of repetition bits;

calculating an average repetition distance variable value of a code symbol unit depending upon each of the calculated rate; and

calculating a shifting parameter for deciding a repetition position per each column of an

interleaver to the input bit sequence for interleaving by using the calculated variable value.

52. (New) The method according to claim 51, wherein if the calculated variable value does not exceed 2, the step of calculating the shifting parameter alternately determines a shifting parameter value calculating for each column as 0 and 1.

53. (New) The method according to claim 51, wherein if a rate between the input bit sequence and the number of repetition bits exceeds 100%, the step of calculating the variable value further comprises calculating the variable value from a value obtained by performing a modular operation of the number of repetition bits to the input bit sequence.

54. (New) The method according to claim 53, wherein if the rate between the input bit sequence and the number of repetition bits is an integral multiple, the step of calculating the variable value decides the variable value as 1.

55. (New) The device according to claim 51, wherein if a rate between the input bit sequence and the number of repetition bits exceeds 100%, the step of calculating the shifting parameter further comprises calculating a shifting parameter for deciding a bit repetition position per column to the input bit sequence by a number of bits exceeding 100%.

56. (New) A rate matching method for uplink, comprising:

inputting an output including a systematic bit sequence, a first parity bit sequence, and a second parity bit sequence, the sequences are obtained by coding a turbo code;

configuring a virtual interleaving pattern for each of the first parity bit sequence and the second parity bit sequence;

comparing a puncturing rate per column of each virtual interleaving pattern with 50% of a reference puncturing rate;

calculating a different puncturing distance q per column of each virtual interleaving pattern, depending upon whether the puncturing rate per column is equal to or greater than the reference puncturing rate and whether the puncturing rate per column is less than the reference puncturing rate;

calculating a shifting parameter value by using the puncturing distance q; and

deciding a puncturing position in the virtual interleaving pattern by using the shifting parameter value.

57. (New) The method according to claim 56, wherein if the puncturing rate is less than the reference puncturing rate, the puncturing distance q has a negative value (-).

58. (New) The method according to claim 57, wherein the puncturing distance q is a minimum integer equal to or greater than a value of a column length of each virtual interleaving

pattern divided by a number of bits to be punctured.

59. (New) The method according to claim 56, wherein if the puncturing rate is equal to or greater than the reference puncturing rate, the puncturing distance q is a minimum integer equal to or greater than a value of a column length of each virtual interleaving pattern divided by a number of bits not to be punctured.

60. (New) A rate matching for an uplink, comprising:

deciding a puncturing rate by using a number of bits to be punctured to a number of input bits;

comparing the puncturing rate with 50% of a reference puncturing rate;

calculating different puncturing distances q depending upon the compared value;

calculating a shifting parameter value by using the puncturing distance q; and

carrying out a puncturing process by using the calculated shifting parameter value.

61. (New) The method according to claim 60, wherein the puncturing distance q is calculated by using any one of the number of bits to be punctured and the number of bits not to be punctured.

62. (New) The method according to claim 61, wherein if the puncturing rate is less than the reference puncturing rate, the puncturing distance q is calculated by using the number of bits to be punctured.

63. (New) The method according to claim 62, wherein the puncturing distance q is a minimum integer equal to or greater than a value of the number of input bits divided by the number of bits to be punctured.

64. (New) The method according to claim 62, wherein the puncturing distance q has a negative (-) value.

65. (New) The method according to claim 61, wherein if the puncturing rate is equal to or greater than the standard puncturing rate, the puncturing distance q is calculated by using the number of bits not to be punctured.

66. (New) The method according to claim 65, wherein the puncturing distance q is a minimum integer equal to or greater than a value of the number of input bits divided by the number of bits not to be punctured.

67. (New) The method according to claim 60, wherein the number of input bits is an output obtained after an interleaving process.

68. (New) A rate matching method for uplink, comprising:

calculating a specific parameter R by performing a modular operation of a predetermined number of bits required for rate matching to a number of input bits N;

if the parameter R value is not equal to 0 and if a value twice the parameter R value is equal to or less than the number of input bits, calculating a distance q for the rate matching as a minimum integer equal to or greater than a value obtained by dividing the number of input bits N by the parameter R;

if a value twice the parameter R value exceeds the number of input bits, calculating a distance q for the rate matching as a minimum integer equal to or greater than a value obtained by dividing the number of input bits N by a subtracted value of the number of input bits N from the parameter R value;

calculating a shifting parameter S for deciding a bit position in a rate matching pattern by using the distance q for the rate matching; and

carrying out a rate matching algorithm by using the shifting parameter S.

69. (New) A method for optimizing a parameter of a parallel puncturing algorithm, in a rate matching for each bit sequence in accordance with a channel coded bit sequence divided into a

first bit sequence (x), a second bit sequence (y), and a third bit sequence (z), comprising:

when carrying out a parallel puncturing process for each bit sequence, using a parameter controlling a position of a puncturing code bit, so as to exclude the first bit sequence (x) from the puncturing process, and to serially and alternately perform the puncturing process on the second bit sequence (y) and the third bit sequence (z).

70. (New) The method according to claim 69, wherein if a plurality of turbo coded bits are divided into a systematic bit sequence, a first parity bit sequence, and a second parity bit sequence, the parameter controlling the position of the puncturing code bit is applied to the parallel puncturing so that the puncturing process for the systematic bit sequence is excluded, and the puncturing processes for the first parity bit and the second parity bit sequence are serially and alternately carried out.

71. (New) The method according to claim 69, wherein the parameter controlling the position of the puncturing code bit is used to subtract an initial error value to the bit sequences by a first constant value in the puncturing process, and used to add a second constant value to the initial error value in the puncturing process when the initial error value is equal to or less than '0'.

72. (New) The method according to claim 70, wherein if *P* is decided a total number of code bits to be punctured, a number of puncturing code bits for the second bit sequence is decided as

a maximum integer not exceeding $P/2$, and a number of puncturing code bits for the third bit sequence is decided as a minimum integer greater than $P/2$.

73. (New) The method according to claim 70, wherein if P is decided to a total number of code bits to be punctured, a number of puncturing code bits for the second bit sequence is decided as a minimum integer greater than $P/2$, and a number of puncturing code bits for the third bit sequence is as decided a maximum integer not exceeding $P/2$.

74. (New) A method for optimizing a parameter of a parallel puncturing algorithm, in a rate matching algorithm for a turbo coded systematic bit sequence, a turbo coded first parity bit sequence, and a turbo coded second parity bit sequence, comprising:

deciding different parameter (a) values for puncturing the first parity bit sequence and the second parity bit sequence, so as to puncture at least one bit corresponding to the first and second parity bit sequences in a specific symbol of a punctured output.

75. (New) The method according to claim 74, wherein if P represents a predetermined number of puncturing bits for the turbo coding, $\lfloor P/2 \rfloor$ number of bits for the first parity bit sequence are punctured at a decided bit position, and $\lceil P/2 \rceil$ number of bits for the second parity bit sequence are punctured at a decided bit position.

76. (New) The method according to claim 74, wherein if P represents a predetermined number of puncturing bits for the turbo coding, $\lceil P/2 \rceil$ number of bits for the first parity bit sequence are punctured at a decided bit position, and $\lfloor P/2 \rfloor$ number of bits for the second parity bit sequence are punctured at a decided bit position.

77. (New) The method according to claim 74, wherein the parameter (a) is used for controlling a starting position of each puncturing pattern for the first and second parity bit sequences.

78. (New) The method according to claim 77, wherein the parameter (a) for any one of the parity bit sequences is decided as '2', when any other parity bit sequence is decided as '1'.

79. (New) The method according to claim 74, wherein the parameter (a) is used to calculate an initial error value (e_{ini}).

80. (New) The method according to claim 79, wherein the initial error value is calculated as $e_{ini} = (a*S(k)*y+b*N)\mathrm{mod}(a*N)$, wherein b is equal to 1, S(k) represents the shifting parameter, y is the number of puncturing bits of each bit sequence, and N represents the number of bits of each bit sequence.

81. (New) The method according to claim 79, wherein the parameter (a) is used to calculate a value to be subtracted from a current error value, so as to decide whether to carry out a puncturing process for a predetermined bit.

82. (New) The method according to claim 79, wherein the parameter (a) is used to calculate a value to be added to a current error value, after the puncturing process of the predetermined bit.